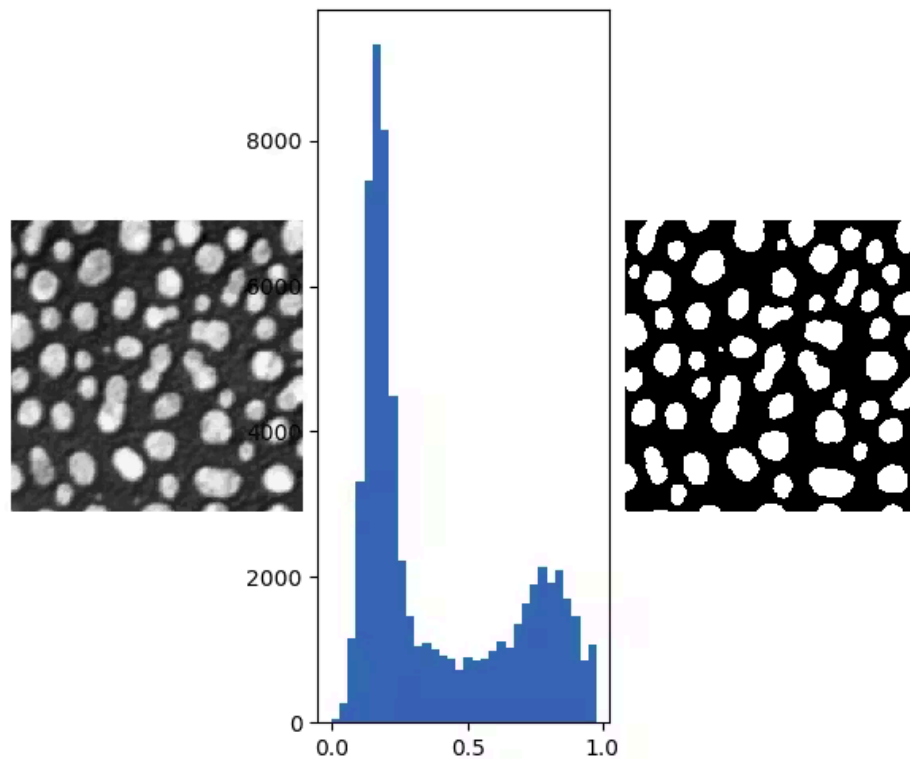


Image Thresholding



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Topics

- Image Thresholding
- Binary, BinaryInv,
- Trunc,
- ToZero and ToZeroInv Thresholding using openCV

Image Thresholding

a technique that separates an image into a foreground and background by converting a grayscale image into a binary image

1. Grayscale to binary
2. Separate foreground from background

How It Works?

- The intensity values of an image are compared against a threshold value.
- Pixels with intensity values above or below this threshold are categorized differently.

Applications:

- segmentation,
- Object detection,
- edge detection
- image enhancement,
- pattern recognition

Types of thresholding:

Global thresholding, adaptive thresholding, and Otsu's method

Global Thresholding

Syntax: `cv2.threshold(gray_img, threshold_val, max_val, threshold_type)`

max_val - used only for binary and binary INV

threshold_type -

Binary: `>threshold (p_val=max_val); <=threshold (p_val=0)`

Binary INV: `>threshold (p_val=0); <=threshold (p_val=max_val)`

Trunc: `>threshold (p_val=threshold); <=threshold (p_val unchanged)`

ToZero: `>threshold (p_val unchanged); <=threshold (p_val=0)`

ToZero INV: `>threshold (p_val=0/black); <=threshold (p_val unchanged)`

Advantages: Easy to implement and understand.

Disadvantages: Requires a fixed threshold value, which may not work well for images with varying lighting conditions.

Next Topics: adaptive thresholding, otsu's thresholding